

# (12) UK Patent Application (19) GB (11) 2 303 258 (13) A

(43) Date of A Publication 12.02.1997

(21) Application No 9613229.5

(22) Date of Filing 25.08.1996

(30) Priority Data

(31) 19524809 (32) 07.07.1995 (33) DE

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(51) INT CL<sup>6</sup>

H01R 13/658

(52) UK CL (Edition O)

H2E EDMC EDMX

(56) Documents Cited

EP 0666705 A2

EP 0555933 A1

WO 90/07206 A1

US 5344341 A

US 5292256 A

US 5215473 A

US 5211576 A

US 5178549 A

US 5162001 A

(58) Field of Search

UK CL (Edition O) H2E EDMC EDMX

INT CL<sup>6</sup> H01R

(54) Shielded electrical connector

(57) A shielded connector has a body 1 of cast metal, for example ZnAl<sub>4</sub>Cu, or plated plastics in which contacts 2 are insulatively mounted. The ends 5 of the contacts may be soldered or press-fit to a pcb. Terminals 9 integral with the shielded body may likewise be mounted on a pcb.

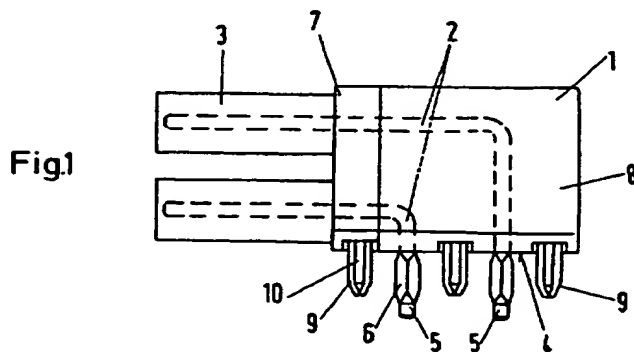


Fig.1

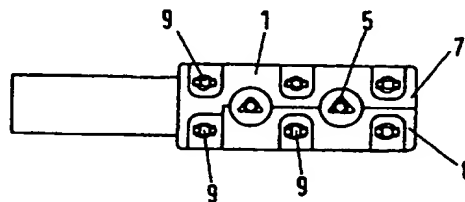


Fig.3

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Fig.1

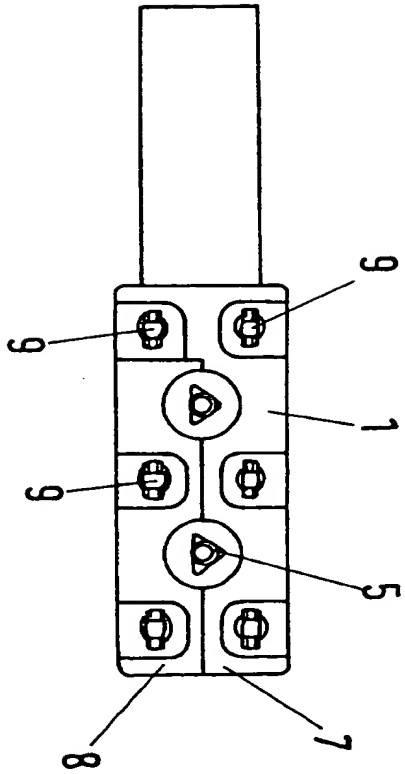
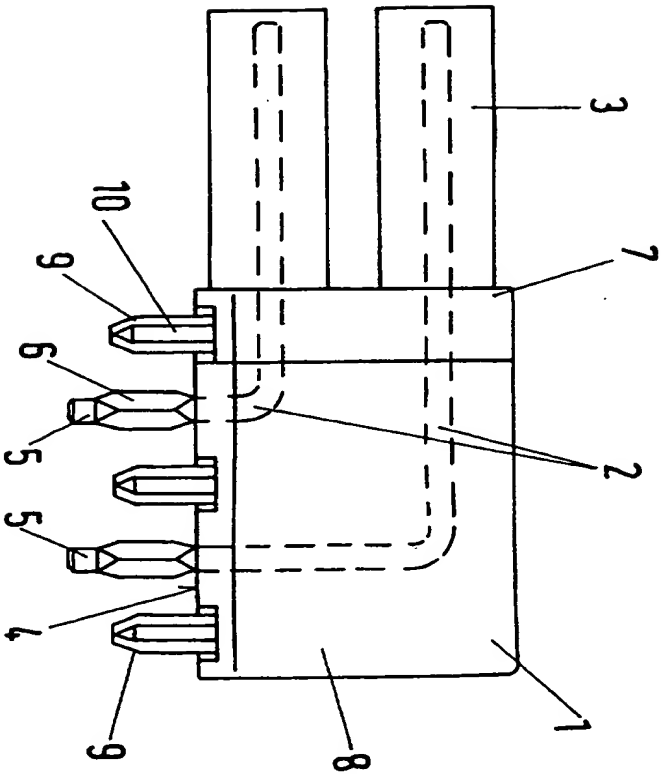


Fig.3

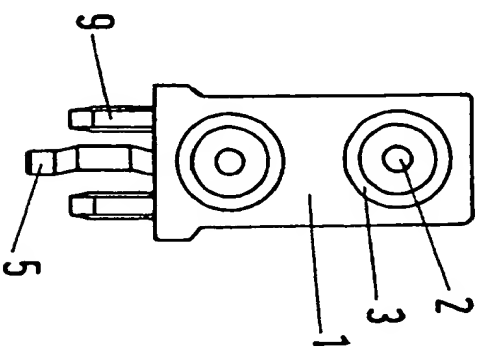


Fig.2

Electrical Connector

The invention relates to an electrical connector for assembly on printed-circuit boards, having a single- or multi-part housing which contains and screens contact elements of the connector, and having means of connecting the housing in an electrically conductive manner to the printed-circuit board.

Such connectors, particularly when they are provided with coaxial contacts, have to have a screen in order to prevent external disturbing pulses from reaching the contact elements inside the connector and to prevent outward emission of pulses which are carried through the contact elements, for example pulses of electro-magnetic radiation.

It is known to provide electrical connectors with a conductive housing, which contains the contact elements and is used to retain and screen said contact elements. The contact elements comprise solder pins or press-in pins, which project from one side of the housing and are insertable into holes of a printed-circuit board. For the electrically conductive connection of the housing to the printed-circuit board, a sheet metal part is provided which is fastened e.g. riveted to the housing and comprises pins

which are insertable into plated holes of the printed-circuit board. This requires, however, the manufacture of another component in addition to the housing.

- 5 The present invention seeks to construct an electrical connector of the type described above in such a way that it may be manufactured inexpensively.

10 According to the present invention there is provided an electrical conductor wherein the housing takes the form of an injection-moulded part and is electrically conductive, and pins are integrally formed on the side of the housing facing the printed-circuit board, which pins are insertable into holes of the printed-circuit board and connectable to  
15 printed conductors of the printed-circuit board.

Advantageous refinements of the invention are indicated in claims 1 to 10.

- 20 The advantages achieved by the invention are in particular that, by virtue of integrally forming the solder or press-in pins on the housing preferably manufactured as an injection-moulded part, there is no need for an additional component for establishing the electrical connection of the  
25 housing to the printed-circuit board. In said respect, a

further advantage is that contacting problems (contact resistance of connection points) between the connection of the additional component to the housing are also eliminated.

5

A further advantage, given the use of a high-purity zinc casting alloy as a housing material, is that said material has an excellent electric conductivity and so a reduction of the electrical housing resistance is achieved.

10

An embodiment of the invention is illustrated in the drawings and described below in detail.

The drawings show:

15

Fig. 1 a view of a connector,

Fig. 2 the side view of the connector according to Fig. 1, and

Fig. 3 the bottom view of the connector according to Fig. 1.

20

The connector illustrated in Figs. 1 to 3 substantially comprises a housing 1, in which contact elements 2 are held. The contact elements take the form of coaxial  
25 contacts and, at the left side of the connector, tubular

screening sleeves 3 are disposed over the contact elements and fastened conductively in or to the housing. Projecting from the underside 4, i.e. from the side of the housing directed towards the printed-circuit board, are terminals 5 of the contact elements. Said terminals are provided with a press-in portion 6 which may be pressed into holes of a printed-circuit board which is not shown in detail here.

10 The housing 1 of the connector is preferably made of a high-purity zinc casting alloy such as, for example, GD-ZnAl4Cu1 according to DIN 1743, Part 2, and comprises two half shells 7, 8. The contact elements 2 are held in said housing by means of spacers made of insulating material, 15 which are not shown in detail here. The housing or the half shells are manufactured as injection-moulded parts and are provided at the underside with integrally formed pins 9. The pins, which during assembly of the connector on the printed-circuit board engage into plated holes, take the 20 form of solder or press-in pins, the press-in pins being provided with a press-in portion 10. The press-in portion may comprise a rigid or, optionally, elastic press-in zone.

The housing or the half shells may optionally be made of 25 plastic material and provided with a conductive coating

e.g. a metallic coating.

An electric connector for assembly on printed-circuit boards, having a housing which contains and screens contact  
5 elements, it is provided that the housing is manufactured as an injection-moulded part with integrally formed pins. When the connector is assembled on the printed-circuit board, the pins engage into plated holes and the electrical connection of the housing to the printed-circuit board is  
10 effected by soldering the pins or by means of a press-in portion formed on the pins.

**CLAIMS:**

1. An electrical connector for assembly on printed-circuit boards, having a single- or multi-part housing  
5 which contains and screens contact elements of the connector, and having connecting means arranged to connect, in an electrically conductive manner, to a printed-circuit board, the housing comprising an injection-moulded part and being electrically conductive, and wherein  
10 the connecting means extend from a side of the housing and are arranged to be insertable into holes of the printed-circuit board and are connectable to printed conductors of the printed-circuit board.
- 15 2. The electrical connector according to claim 1, wherein the housing is made of a metal material, preferably of a high-purity zinc casting alloy.
3. The electrical connector according to claim 1, wherein  
20 the housing is made of plastic material and provided with a conductive coating.
4. The electrical connector according to one of the preceding claims, characterised in that the connecting  
25 means comprise solder pins.



5. The electrical connector according to one of claims 1 to 3, wherein the connecting means comprise pins with a press-in zone which, upon pressing of the pins in to the holes of the printed-circuit board, comes into contact with a hole plating of the printed-circuit board.

6. A method of producing a housing of an electrical connector for assembly on a printed-circuit board, the housing containing and screening contact elements of the connector, the housing including connection means e.g. pins, arranged to be connectable in holes of the printed-circuit board for electrical connection between the housing and the printed circuit board, wherein the housing is formed by injection moulding.

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7. The method of claim 6, wherein the housing is made of a plastic material and is provided with a conductive coating, e.g. a metallic coating.

8. The method of claim 6 or claim 7, wherein the connecting means are integral with the housing.

9. An electrical connector as hereinbefore described with reference to, and as illustrated by, the accompanying drawings.

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10. A method of producing a housing of an electrical connector for assembly on printed-circuit board, the housing contains and screening contact elements of the connector. The housing having connector means for  
5 electrical connection with the printed circuit board, as hereinbefore described with reference to, and as illustrated by, the accompanying drawings.



Application No: GB 9613229.5  
Claims searched: 1 to 10

Examiner: F J Fee  
Date of search: 28 August 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): H2E [EDMC, EDMX]

Int Cl (Ed.6): H01R

Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	US 5344341 [YOSHINO]	1, 3, 4, 6, 7
X	US 5292256 [BRUNKER]	1, 2, 4, 5
X	US 5215473 [BRUNKER]	1, 2, 4, 5
X	US 5211576 [NEUMANN]	1, 3, 4, 6, 7
X	US 5178549 [NEUMANN]	1, 3, 4, 6, 7
X	US 5162001 [HARWATH] column 3 lines 9 to 14, column 4 lines 24 to 32	1 to 4, 6, 7, 8
X	EP 0666705 A2 [MOLEX]	1, 2, 4
X	EP 0555933 A1 [DU PONT]	1, 2, 4
X	WO 90/07206 A1 [CRAY]	1, 3, 4, 6, 7

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

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